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BAKER ASSOCIATES PLLC 470 EAST NINTH AVENUE SALT LAKE CITY, UT 84103			ELLIS, SUEZU Y	
			ART UNIT	PAPER NUMBER
			2878	
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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/731,878

Applicant(s)

PENG ET AL.

Examiner

Suezu Ellis

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 21,22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 23-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **RESPONSE TO AMENDMENT**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 26, claim language recites "two independent dimming movements". It is unclear if applicant intends there to be two movements that dim the light (i.e. one movement dims the light so far and the second movement further dims it) or if applicant intends one movement to be lightening and the other dimming. Please clarify.

Claim 27 is indefinite due to its dependency.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 23, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walthall et al (US 4,305,006). Hereinafter, Walthall et al. will be referred to as Walthall.

With respect to claim 1 and 23, Walthall discloses a non-contact electrical switch having a motion detection element that can detect two independent movements (upward and downward) which mimics the movements required to physically switch a conventional switch, wherein the mimicking motion includes movement characteristics of duration, direction and distance (col. 1, lines 47-59; col. 3, lines 18-21, 42-60). Walthall further discloses if the detector detects one of the two movements, the electronic switching element will switch between a first state (ON – 100% load) and a second state (dimming – not 100% load). Walthall discloses two different movements switches the states (downward and upward), however fails to expressly disclose the movements being in a manner which corresponds to how a conventional switch (dimmer) operates, i.e. up = on, down = dim. However, it would be an obvious design choice to a person of ordinary skill in the art to modify the directional movements of Walthall to correspond to those of a conventional dimmer in order to not confuse the user. Further, in some user preferences, a conventional dimmer can be installed upside down, thus operating in the same manner as Walthall.

With respect to claims 2-4, the modified Walthall discloses in Fig. 8, the motion detection element includes two emitters (D1, D1') and a detector (Q2), wherein the emitters are in vertical alignment with one another and the detector is positioned between the two emitters.

With respect to claim 5, the modified Walthall discloses the detector senses the passing of one's hand within about 3-4 inches of the detector.

With respect to claims 6-8, the modified Walthall discloses two visible position indicators (D4, D5) where each indicator is an LED that produces red and green colors.

With respect to claim 26, the modified Walthall discloses turning the dimming on and off via two independent movements. Since applicant does not disclose the independent movements as being two different directions, the modified Walthall discloses moving the hand upwards to turn the dimming on and moving the hand upwards to turn it off (col. 11, lines 28-33).

With respect to claim 27, the modified Walthall discloses an on dimming and an off dimming movement. The modified Walthall further discloses in the on-off circuitry if the switch is in an "off" state, the resistance is high. The modified Walthall further discloses the circuitry of the dimming circuit operates identical to the on-off circuitry. Thus when the dimmer is in an off state (off dimming), the resistance is high as well (col. 6, lines 40-54); col. 7, lines 17-19; col. 11, lines 45-46).

Claim 9 and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Walthall in view of Lang.

With respect to claim 9, the modified Walthall addresses all the limitations of claim 1, however fails to expressly disclose an audio element configured to output an audible signal when the switching motion is detected. Lang discloses the inclusion of an audible sound as an indicator of when the switch changes states (col. 4, lines 5-7).

Note the change of states occurs after switching motion is detected by the detector. It would have been an obvious design choice for a person of ordinary skill in the art to include an audible signal when the switching motion is detected, as another means of an indicator, in order to let the user know when the switch has changed states.

With respect to claim 24, the modified Walthall fails to expressly disclose an audio element configured to output an audible signal when the switching motion is detected. Lang discloses the inclusion of an audible sound as an indicator of when the switch changes states (col. 4, lines 5-7). Note the change of states occurs after switching motion is detected by the detector. It would have been an obvious design choice for a person of ordinary skill in the art to include two distinct audible signals that corresponds to the two movements, as another means of an indicator, in order to let the user know when the switch has changed states.

Claims 10-13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walthall in view of Endruschat et al. (US 5,594,238). Hereinafter, Endruschat et al. will be referred to as Endruschat.

With respect to claim 10, Walthall discloses a non-contact electrical switch having a motion detection element that can detect two independent movements (upward and downward) which mimics the movements required to physically switch a conventional switch, wherein the mimicking motion includes movement characteristics of duration, direction and distance (col. 1, lines 47-59; col. 3, lines 18-21, 42-60). Walthall further discloses if the detector detects one of the two movements, the

electronic switching element will switch between a first state (ON – 100% load) and a second state (dimming – not 100% load). Walthall discloses in Fig. 8, the motion detection element includes two emitters (D1, D1') and a detector (Q2), wherein the emitters are in vertical alignment with one another and the detector is positioned between the two emitters. Walthall discloses two different movements switches the states (downward and upward), however fails to expressly disclose the movements being in a manner which corresponds to how a conventional switch (dimmer) operates, i.e. up = on, down = dim. However, it would be an obvious design choice to a person of ordinary skill in the art to modify the directional movements of Walthall to correspond to those of a conventional dimmer in order to not confuse the user. Further, in some user preferences, a conventional dimmer can be installed upside down, thus operating in the same manner as Walthall. Walthall fails to expressly disclose the inclusion of a processor. Endruschat and Walthall are directed to a similar field of endeavor of touchless switches. Endruschat discloses a touchless electrical switch which comprises a processor. It would have been an obvious design choice to a person of ordinary skill in the art to include a processor in the system of Walthall in order to interpret the presence of the hand and initiate the toggle operation (switching operation).

With respect to claim 11, the modified Walthall discloses the inclusion of a triac circuit (TR1) (col. 9, line 64).

With respect to claims 12 and 17, the modified Walthall discloses the detector senses the passing of one's hand within about 3-4 inches of the detector.

With respect to claims 13 and 18, the modified Walthall discloses two visible position indicators (D4, D5) where each indicator is an LED that produces red and green colors.

With respect to claim 15, Walthall discloses a non-contact electrical switch having a motion detection element that can detect two independent movements (upward and downward) which mimics the movements required to physically switch a conventional switch, wherein the mimicking motion includes movement characteristics of duration, direction and distance (col. 1, lines 47-59; col. 3, lines 18-21, 42-60). Walthall further discloses if the detector detects one of the two movements, the electronic switching element will switch between a first state (ON – 100% load) and a second state (dimming – not 100% load). Walthall discloses in Fig. 8, the motion detection element includes two emitters (D1, D1') and a detector (Q2), wherein the emitters are in vertical alignment with one another and the detector is positioned between the two emitters. Walthall discloses two different movements switches the states (downward and upward), however fails to expressly disclose the movements being in a manner which corresponds to how a conventional switch (dimmer) operates, i.e. up = on, down = dim. However, it would be an obvious design choice to a person of ordinary skill in the art to modify the directional movements of Walthall to correspond to those of a conventional dimmer in order to not confuse the user. Further, in some user preferences, a conventional dimmer can be installed upside down, thus operating in the same manner as Walthall. Walthall fails to expressly disclose timing the switching motion and switching the state of the electrical circuit when the switching motion occurs



within a predetermined time range. Endruschat teaches determining if the switching motion occurs within a predetermined time range and switching the state of the electrical circuit of so (col. 4, line 65 – col. 5, line 9). It would have been obvious to time the switching motion and to switch the state of the electrical circuit if the switching motion occurred within a predetermined time range in order to determine if the user is inadvertently in front of the switch or if the switch should be turned on or off.

With respect to claim 16, opening and closing the electrical circuit when switching the state of the electrical circuit (“on” or “off”) is inherent to the apparatus. When turning the switch on, the electrical circuit would be closed and turning the switch off, the electrical circuit would be opened.

With respect to claim 19, the modified Walthall discloses the LED produces red and green colors depending on the on/off state. Thus if the switch is turned on (altering a switch state from off to on), the Led produces a green color.

Claims 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walthall in view of Endruschat and further in view of Lang (US 5,977,878).

With respect to claims 14 and 20, the modified Endruschat addresses all the limitations of claim 10 and 15, however, fails to expressly disclose an audio element configured to output an audible signal when the switching motion is detected. Lang discloses the inclusion of an audible sound as an indicator of when the switch changes states (col. 4, lines 5-7). Note the change of states occurs after switching motion is detected by the detector. It would have been an obvious design choice for a person of

ordinary skill in the art to include an audible signal when the switching motion is detected, as another means of an indicator, in order to let the user know when the switch has changed states.

Claims 10-13, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endruschat et al. (US 5,594,238) in view of Walthall. Hereinafter, Endruschat et al. will be referred to as Endruschat.

With respect to claim 10, Endruschat discloses a non-contact switch comprising a processor that controls an emitter and that determines the presence of an object so that a toggle operation is initiated to toggle the switch (col. 4, lines 13-16, 42-44). Note, since the processor can determine the presence of an object, it is in communication with the detector. Endruschat further discloses the switch can determine the difference between a toggle motion (hand sweeping in front of the switch) and a non-toggle motion (inadvertent stepping in front of the switch), thus mimicking the movement of physically switching a conventional switch (col. 4, line 65 – col. 5, line 3). Endruschat fails to expressly disclose the sweeping hand motion is characteristic of the same direction as switching a conventional switch, however, it would be obvious to a person of ordinary skill in the art to have the system of Endruschat detect such a motion in order to not confuse the user since the user would already be used to the same switching motions of a conventional switch. Endruschat fails to expressly disclose a pair of aligned emitters and the detector being positioned between the emitters. Endruschat and Walthall are directed to a similar field of endeavor of touchless switches. Walthall further discloses

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the detector being positioned between a pair of emitters. It would have been an obvious design choice to a person of ordinary skill in the art to modify the system to be of the same set up as Walthall in order to detect the direction of the sweeping hand motion.

With respect to claim 11, the modified Endruschat discloses that triacs can be used (col. 9, lines 46-49).

With respect to claims 12, the modified Endruschat discloses the detector can sense the movement up to five inches away (col. 9, lines 46-49).

With respect to claims 13, 18 and 19, the modified Endruschat fails to expressly disclose the non-contact switch having a visible indicator. Walthall discloses the inclusion of two visible position indicators where each indicator is an LED that produces red and green colors depending on the on/off state. It would have been obvious to a person of ordinary skill in the art to incorporate visible indicators to visibly indicate the switch state of the switch.

Claims 1, 15-17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endruschat.

With respect to claims 1 and 25, Endruschat discloses a non-contact switch which has a motion detection element that detects a toggle movement (sweeping hand motion) to toggle the switch, thus causing the switch to change between a first and second electrical state (on/off). Note, two independent movements must be detected in order to switch the non-contact switch on and off. Regarding the direction and duration of the movement, Endruschat discloses that the toggle operation is indicated if the hand

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is removed within a preselected time (duration). Endruschat discloses that the detectable distance of an object (i.e. hand) can vary from 0 to 5 inches (distance) (col. 9, lines 55-57). Endruschat fails to expressly disclose the sweeping hand motion is characteristic of the same direction as switching a conventional switch (up = on and down = off), however, it would be obvious to a person of ordinary skill in the art to modify the motion to be upwards to turn the switch on and downwards to turn the switch off since the user would already be accustomed to those switching motions of a conventional switch.

With respect to claim 15, Endruschat discloses performing a toggling motion (sweeping pass of a hand), detecting the motion, timing the motion and determining whether the timing of the motion occurs within a predetermined time range, and switching the state of the electrical circuit (on/off) (col. 4, line 65 – col. 5, line 9). Endruschat fails to expressly disclose determining whether the motion is effected in a direction which corresponds to a change in the state of the electrical circuit, however, it would have been obvious to a person of ordinary skill in the art to determine if the motion is performed in a direction that corresponds to a conventional switch in order to not to the confuse the user who is already accustomed to performing the motions to use the conventional switch.

With respect to claim 16, opening and closing the electrical circuit when switching the state of the electrical circuit ("on" or "off") is inherent to the apparatus. When turning the switch on, the electrical circuit would be closed and turning the switch off, the electrical circuit would be opened.

With respect to claim 17, the modified Endruschat discloses the detector can sense the movement up to five inches away (col. 9, lines 46-49).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endruschat in view of Walthall and further in view of Lang (US 5,977,878).

With respect to claim 14, the modified Endruschat addresses all the limitations of claim 10, however, fails to expressly disclose an audio element configured to output an audible signal when the switching motion is detected. Lang discloses the inclusion of an audible sound as an indicator of when the switch changes states (col. 4, lines 5-7). Note the change of states occurs after switching motion is detected by the detector. It would have been an obvious design choice for a person of ordinary skill in the art to include an audible signal when the switching motion is detected, as another means of an indicator, in order to let the user know when the switch has changed states.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endruschat in view of Lang.

With respect to claim 20, the modified Endruschat addresses all the limitations of claim 10, however, fails to expressly disclose an audio element configured to output an audible signal when the switching motion is detected. Lang discloses the inclusion of an audible sound as an indicator of when the switch changes states (col. 4, lines 5-7). Note the change of states occurs after switching motion is detected by the detector. It would have been an obvious design choice for a person of ordinary skill in the art to

include an audible signal when the switching motion is detected, as another means of an indicator, in order to let the user know when the switch has changed states.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 5, 9, 21 and 23-27 rejected under McMahon et al. have been fully considered and are persuasive. The rejection of claims 1, 5, 9, 21 and 23-27 under McMahon et al. has been withdrawn. However, Applicant's arguments with respect to claims 1-8 rejected under Walthall and claims 10-13, 18 and 19 under Walthall in view of Endruschat have been fully considered but they are not persuasive.

With respect to claim 1 that is rejected as being unpatentable over Walthall, applicants argue Walthall does not teach "a motion detection element configured to detect two independent movements which mimic the movements required to physically switch a conventional toggle switch, wherein the mimicking includes the movement characteristics, direction and distance". Examiner respectfully disagrees. Walthall teaches detecting a passing hand close to and in front of the sources and detector in a given direction to turn the switch on (first electrical state) and the opposite direction to dim the switch (not 100% load - second electrical state) (col. 1, lines 47-68). This movement of the hand mimicks the direction to physically turn on a conventional toggle switch. With respect to mimicking the distance of a conventional toggle switch, Walthall discloses the distance being less than six inches (such as three or four inches) so as to not unintentionally trip the on-off circuitry (col. 3, lines 18-21; col. 9, lines 18-20).

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Further note, Walthall illustrates a similar structure as applicant and further differentiates between two independent motions in opposite directions, thus the motion detection element is *configured* to detected two independent movements.

Applicants further argue Walthall does not teach a system that is capable of recognizing the “movement characteristic” duration, and thus cannot selectively detect movements which include a duration characteristic associated with how a conventional toggle switch is operated. Examiner respectfully disagrees. As understood by the examiner, and affirmed by the applicants (see page 7 of remarks), the term “toggle switch” is defined as a switch that toggles between *at least* two states. Thus, a conventional dimmer is deemed equivalent to a conventional toggle switch since it toggles between at least two states. Thus, by mimicking the movement of a conventional dimmer, Walthall indirectly teaches detecting movements that include a duration characteristic associated how a conventional toggle switch (conventional dimmer) is operated.

Applicants also argue Walthall does not teach a switch that is configured to respond in a manner which corresponds to the type of movement initiating the response. Examiner respectfully disagrees. If a conventional dimmer is installed upside down, a downward motion would turn the switch on and an upward motion would dim the light, thus Walthall corresponds to how a conventional toggle switch (dimmer) would operate when installed upside down.

With respect to claims 1, 10 and 15 that are rejected as being unpatentable over Endruschat, applicants argue the claimed invention *only* operates in response to a narrow set of movements that mimic a narrow set of physical movements to operate a conventional switch and Endruschat teaches a broad set of movements, thus Endruschat cannot be used to constrain a switch to only respond to the narrow set of movements. Examiner respectfully disagrees. While examiner agrees that Endruschat teaches a broad set of movements (i.e. toggle motion), applicants fail to limit the scope of the claim to *only* operate in the narrow set of movements as argued by applicant. Claim language recites "the switch *comprising* the motion detection element configured to detect two independent motions, wherein the movement characteristics *includes...*". Thus, the motions are not limited to only those set of narrow movement characteristics. The movement characteristics can include those characteristics and any other movements that mimic the motion.

In response to applicants' argument that there is no suggestion to constrain a switch to *only* respond to these movements, as stated above, the switch need not be constrained to respond to *only* those movements. However, as stated in the rejection above, it would be obvious to a person of ordinary skill in the art to detect a toggle motion with all the same movement characteristics as that of the applicant since the user would already be accustomed to the switching motions to switch on/off/dim a conventional switch.



With respect to 10-13, 18 and 19 that are rejected as being unpatentable over Endruschat in view of Walthall, applicants argue the movements that switch a physical toggle switch are much narrower than “hand sweeping in front of a switch”. However, the claim language recites “the switch *comprising* the motion detection element configured to detect two independent motions, wherein the movement characteristics *includes...*”. Thus, the movements claimed are not limited to be as narrow as applicant intends. Further, applicants argue that if the hand sweep is not at a particular distance from the switch, the switch will not operate. Applicant argues if the hand sweeping is not at a particular distance from the switch, the switch will not operate. In order to not inadvertently operate the switch, the hand would have to be within a particular distance from the switch. Further, applicants argue if the hand sweeping is performed at a rate, it will not mimic the movements required to switch a physical switch. Examiner disagrees. A hand motion of any rate will switch on/off/dim a physical switch. A physical switch can still be turned on/off/dim whether the switching motion is fast or slow.

Applicants further argue “for a switch to electrically switch states or respond (turn on or off) to a particular movement, it must be able to detect/differentiate that movement from other movements”. Applicant fails to describe what the “other movements” are, examiner will interpret “other movements” as being non-toggle movements. Endruschat teaches discriminating between a toggle motion and a non-toggle motion (other movements).

Applicants further argue that that Endruschat fails to teach “wherein the state of the electronic switching element is changed in a manner which corresponds to how a

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conventional toggle switch would respond to the detected movement". Examiner further disagrees. Endruschat discloses if a switch is off and a toggle motion is detected, a switch turns on, thus responding in a manner as to how a conventional toggle switch would respond. Regarding the direction and duration of the movement, Endruschat teaches that the toggle operation is indicated if the hand is removed within a preselected time (duration). Endruschat teaches that the detectable distance of an object (i.e. hand) can vary from 0 to 5 inches (distance). With respect to direction, it would be obvious to a person of ordinary skill in the art to detect the direction of the hand motion if user desires to dim the light, as taught by Walthall.

Applicants address the allowability of claims 2-8, 11-14, 18, 19 due to their dependency on claims 1, 10 and 15. However, since rejections of claims 1, 10 and 15 are maintained, the rejection of claims 2-8, 11-14, 18 and 19 are also maintained.


Applicant's arguments with respect to claims 9 and 24-27 have been considered but are moot in view of the new grounds of rejection.

#### ***Telephone/Fax Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suez Ellis whose telephone number is (571) 272-2868. The examiner can normally be reached on 8:30am-5pm (Monday-Friday).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephone B. Allen  
Primary Examiner